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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,621	02/18/2004	Zhiguo Xiao	CCPIT-7	5095
1473	7590	12/04/2006	EXAMINER	
FISH & NEAVE IP GROUP ROPES & GRAY LLP 1251 AVENUE OF THE AMERICAS FL C3 NEW YORK, NY 10020-1105			KOSLOW, CAROL M	
			ART UNIT	PAPER NUMBER
			1755	

DATE MAILED: 12/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/782,621

Applicant(s)

XIAO ET AL.

Examiner

C. Melissa Koslow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8, 12, 13 and 16-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 12, 13 and 16-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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This action is in response to applicants' amendment of 31 October 2006. The amendments to the claims have overcome the 35 USC 112 rejection. Applicant's arguments with respect to the remaining art rejections have been fully considered but they are not persuasive.

Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claimed wording of "selected from the group consisting essentially of" is improper Markush terminology and thus the claim is indefinite. The correct Markush wording is "selected from the group consisting of".

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2004-10409.

This reference teaches a luminous glass comprising a light-storage self-luminescent material having a size in the range of 0.1-1 mesh in a glass matrix. This glass is formed by melting a glass, adding the light-storage self-luminescent material to the melt and glass-blowing the molten glass at 800-1000°C, which overlaps the claimed range. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). While the glass composition is not specified, it is clear and obvious that it can be any glass commonly produced by glass blowing and which can be colored with a light-storage self-

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luminescent material, such as a conventional sodium-calcium-silicate glass. The taught mesh size range appears to correspond to a inch scale mesh. Thus the taught size range of 0.1-1 mesh appears means the luminescent material has a particle size in the range of 0.1-1 inch, or 2.54-25.4 mm, which overlaps the claimed range. While the reference does not teach the amount of luminescent material, it is clear that the amount is that effective to form a luminous glass. It is known in the art, as shown by the cited references, that this effective amount is 40 wt% or less, which overlaps the claimed range. The reference suggests the claimed glass and process.

Claims 2-5, 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2004-10409 as applied to claim 1 above, and further in view of U.S. patents 5,839,718; 6,431,236; 6,617,781 and 6,071,432.

As stated above, JP 2004-10409 suggests the claimed glass. The light-storage luminescent material in JP 2004-10409 emits green light. If one of ordinary skill in the art wish for the glass to emit a different color, one would have found it obvious to replace the taught green light emitting material with any other color emitting light-storage luminescent materials, such as with the red, blue-green or blue light emitting phosphors taught U.S. patents 5,839,718; 6,617,781; 6,431,236 and 6,071,432 which have the formulas of the materials claimed in claims 2-5. The references suggest the claimed glass.

Claim 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2004-10409 as applied to claim 1 above, and further in view of U.S. patent 5,424,006.

As stated above, JP 2004-10409 suggests the claimed glass. The light-storage luminescent material in JP 2004-10409 emits green light, but it is not defined. One of ordinary skill in the art would have found it obvious to use the green light emitting aluminate light-storage

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luminescent material of U.S. patent 5,424,006, which have the formulas of claims 6 and 7, since they have a long afterglow, are more chemically stable and have higher photoresistance. The references suggest the claimed glass.

Applicants' arguments with respect to the taught mesh size have been considered but are not convincing. Applicants argues that 0.1 mesh cannot be equivalent to 0.1 inch since mesh sizes of less than 0.25 inch are given mesh numbers of  $3\frac{1}{2}$  and whole numbers greater than  $3\frac{1}{2}$  and that a hole size of 0.1 inch is 10 mesh. This is incorrect since the Sigma-Aldrich table clearly teaches a hole size of about 0.1 inch is equivalent to a mesh size of 7, which is 0.111 inch. Applicants then argue that because of what they stated above 0.1-1 mesh must be 1-10 inches but does not explain why. Based on the teaching on the Sigma-Aldrich table, the taught range of 0.25-1 mesh is 0.25-1 inch. Thus clearly rebut applicants' argued range of 1-10 inches and applicants have not explained why one of ordinary skill in the art would not assume the taught size of 0.1 to less than 0.25 mesh does not correspond to 0.1 to less than 0.25 inches, but would have the argued size of greater than 4 up to 10 inches. It should be noted that if applicants' arguments are correct and given the teachings in the supplied mesh size table, the taught range is 0.25-10 inches, which corresponds to 6.35-254 mm, which overlaps the claimed range. The rejection is maintained.

Claims 1, 6-8, 12, 13, and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 03/057796 in view of U.S. patent 6,197,712 and JP 2004-10409.

U.S. patent 7,074,345 is the national stage application, and thus translation for, WO 03/057796.

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WO 03/057796 teaches a light storage self-luminescent glass comprising 5-93 wt% of light storage self-luminescent particles, such as commercially available strontium aluminates and zinc sulfides, where the particles have a particle size in the range of 0.1-2 mm (col. 4, lines 34-40 and col. 5, lines 7-13 and lines 65-66). This particle size range and amount overlaps the claimed ranges. Commercially available strontium aluminate light storage self-luminescent particles or phosphors are known to have the formula of claims 6-8. WO 03/057796 teaches producing the glass by doping the molten glass, which must have been formed and cooled, with the particles. This is the process of claims 13 and 19. While WO 03/057796 does not teach the composition of the glass, one of ordinary skill in the art would have found it obvious to use any glass composition that is known to be used to form light storage self-luminescent glass, such as a conventional sodium-calcium-silicate glass, as taught by U.S. patent 6,197,712.

WO 03/057796 also does not give any specific processing conditions for producing the suggested glass. U.S. patent 6,197,712 and JP 2004-10409 teaches such glasses are produced by heating and melting the formed and cooled glass, doping the molten glass with the particles and then forming the molten glass at about 800 to about 1093°C, which overlaps the claimed range. Therefore one of ordinary skill in the art would have found it obvious to produce the glass of WO 03/057796 by the taught mixing step and then shaping the molten glass by the methods of U.S. patent 6,197,712 and JP 2004-10409. The references suggest the claimed glass and process.

Claims 2-5 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 03/057796 in view of U.S. patent 6,197,712 as applied to claim 1 above, and further in view of U.S. patents 5,839,718; 6,431,236; 6,617,781 and 6,071,432.

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As stated above, WO 03/057796 in view of U.S. patent 6,197,712 suggests the claimed glass. The light-storage luminescent material in WO 03/057796 in view of U.S. patent 6,197,712 emits green light. If one of ordinary skill in the art wish for the glass to emit a different color, one would have found it obvious to replace the taught green light emitting material with any other color emitting light-storage luminescent materials, such as with the red, blue-green or blue light emitting phosphors taught U.S. patents 5,839,718; 6,617,781; 6,431,236 and 6,071,432 which have the formulas of the materials claimed in claims 2-5. The references suggest the claimed glass.

U.S. patent application publication 2006/0214134 is cited as of interest since it claims a light storage self-luminescent glass comprising 0.1-5 wt% of light storage self-luminescent particles having a particle size in the range of 0.05-5 mm, where the glass is selected from the group consisting of soda-lime silicon glass, aluminate glass and borate glass. The reference teaches the particles can have the formula of claims 5-8 and 16.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cmk  
December 1, 2006



C. Melissa Koslow  
Primary Examiner  
Tech. Center 1700